A Canadian online survey of oncology nurses' perspectives on the management of breakthrough pain in cancer (BTPc)

by Margaret I. Fitch, Alison McAndrew and Stephanie Burlein-Hall

Abstract

This paper explores Canadian oncology nurses' perception of management of breakthrough pain in cancer (BTPc). An online questionnaire was distributed to 668 oncology nurses across Canada, and 201 participated. More nurses reported that patients used hydromorphone (99.5%), morphine (97.0%), codeine (88.1%), or oxycodone (88.1%) for BTPc, than fentanyl preparations (64.7%). Problems with opioid administration reported by nurses included failure to work quickly enough (35.7%), difficulty swallowing (16.6%), need for caregiver assistance (13.2%), mouth sores (12.6%) and dry mouth (11.5%). Although most nurses discussed BTPc management with their patients, the vast majority (72.2%) were not very satisfied with current treatment modalities. Effective dialogue with patients and access to educational resources/tools may help optimize therapy and enhance concordance with BTPc medications.

Key words: breakthrough cancer pain, nursing, pain management, Canadian

Breakthrough pain in cancer (BTPc) has been defined as a transient exacerbation of pain that occurs despite well managed background pain (Davies et al., 2011; Haugen, Hjermstad, Hagen, Caraceni, & Kaasa, 2010; Mercadante et al., 2002). This episodic, but characteristically severe pain is reported to range widely in prevalence, affecting approximately 20% to 95% of individuals (Mercadante et al., 2002; Portenoy & Hagen, 1990; Zeppetella & Ribeiro, 2003). Breakthrough pain generally presents rapidly, peaks quickly (usually within three to five minutes), and lasts for a short duration of time (30-minute average) (Davis, 2011; Zeppetella, 2011a; Zeppetella & Ribeiro, 2003). Effective management of BTPc requires careful assessment, appropriate treatment with pharmacological and non-pharmacological interventions, and ongoing reassessment (Zeppetella, 2011a). Episodes of BTPc are commonly treated with opioid therapies at a percentage of the usual around-the-clock (ATC) dose (Cancer Care Ontario [CCO], 2008; Zeppetella, 2011a), although agents are now available that provide rapid analgesia to reflect the temporal characteristics of a typical BTPc episode (Mercadante, 2011).

Barriers to optimal pain management include the attitudes and misconceptions held by health care professionals, patients and caregivers towards opioid treatment, challenges in the assessment of pain, and knowledge gaps (Elcigil, Maltepe, Esrefgil, & Mutafoglu, 2011; Green et al., 2010). As nurses play a central role in the management of BTPc, garnering their perspectives on the patient experience and most desirable features of treatment should provide important insights for enhancing quality of care.

Literature review

Effective management of BTPc involves a combination of lifestyle changes, interventions to ameliorate reversible causes/pathological processes, and administration of non-pharmacological and pharmacological therapies, although there is no widely established "gold standard" for pharmacological treatment (Zeppetella, 2011a). Sustained release oral opioids are typically used for ATC treatment of background pain, with immediate release opioids generally dosed as a proportion of the usual ATC daily dose for use as "rescue" medication for BTPc, either prophylactically or "as needed" (CCO, 2008; Zeppetella, 2011a). However, such a dosage strategy is based on anecdotal evidence.

Due to the heterogeneity of BTPc characteristics between individuals, such as differences in numbers of episodes and the types of precipitants (Portenoy & Hagen, 1990; Portenoy, Payne, & Jacobsen, 1999; Zeppetella, 2011a; Zeppetella, O'Doherty, & Collins, 2000; Zeppetella & Ribeiro, 2003), an individualized approach to prescribing and administering rescue medication has been recommended (Zeppetella, 2011a). The individualized plan of care is developed and optimized through the combined input of an inter-professional team of health care providers such as nurses, physicians, pharmacists, physiotherapists, and/or counsellors that work together with persons living with cancer (i.e., the patients, families and significant others [CANO/ACIO, 2011]). Decisions made regarding the most appropriate medication for coverage of BTPc episodes involve consideration of drug class and dosage, route of administration, patient setting, and whether the pain is incident-related or arises spontaneously (Zeppetella, 2011a). Nurses are an integral part of a pain management team owing to their involvement in all stages of care and in different health care settings (CANO/ACIO, 2011). Effective communication between nurses and patients during each therapeutic encounter is vital for helping to understand the patient's perspective, since, according to McCaffery's (1968) definition "pain is whatever the experiencing person says it is, existing whenever the experiencing person says it does" (McCaffery, 1968).

The perspectives of health care professionals and patients on the management of BTPc have been assessed in surveys conducted in various regions around the world (Davies et al., 2011; European

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Oncology Nursing Society, 2011; Mercadante, Villari, & Casuccio, 2011; Zeppetella et al., 2000), but information from the perspective of Canadian oncology nurses is limited. Surveys can provide valuable feedback that informs pain education and training programs. Improved education in pain management for health care professionals and persons with pain has been an area of key interest outlined in a national pain strategy recently proposed for adoption in Canada by The Canadian Pain Society (CPS) and the Canadian Pain Coalition (CPC).

Purpose

The purpose of this study was to gather information from a sample of Canadian cancer nurses on the pharmacological management of BTPc, including their perception of patient preferences and satisfaction with treatment. We anticipated the results from this sample of Canadian cancer nurses would provide a foundation for program development and deepen our understanding of nurses' perspectives.

Methodology

Design

In June 10–July 4, 2011, an online survey questionnaire was distributed to the Canadian Association of Nurses in Oncology (CANO) members' email list (N=668). This cross-sectional sample was chosen as a population representative of the broader oncology nursing workforce in Canada, as there is no currently available Canada wide registry of oncology nurses. In all, CANO membership includes more than 1,000 oncology nurses across Canada who joined on a volunteer basis. The survey questionnaire was available in English and French.

Participant accrual and data collection

The survey was designed for the purposes of this study. The initial questions served to screen the participants on the basis of the following criteria: 1) must work with patients with cancer, 2) must treat cancer patients for the pain related to their cancer (alone or with a physician), and 3) must see at least 10 patients per month. Those who met all three criteria were then asked to proceed with the survey.

The main questionnaire included 43 questions, and took approximately 30 minutes to complete. Questions in the overall survey related to nurses' perceptions of the prevalence, severity, and characteristics of BTPc; impact on patients' quality of life; patient satisfaction with current management; and desired qualities of treatment. The insights we gathered on current management of BTPc are presented in this report. A stipend was offered for completion of the survey. Ethics approval was not required.

Data analysis

Data were collated via an online tool (www.simplesurvey.com) and imported into SPSS databases (IBM SPSS Statistics 17.0). Descriptive analysis and cross-tabulations were performed using SPSS. Frequency distributions and percentages were calculated for each question. Cross-tabulations by each demographic question were performed, including age, education, years in oncology nursing, specialty education, work status, work setting, region, and patients seen per month.

Results

Sociodemographics

A sample size of 201 respondents was achieved (30% response rate) (Table 1; Figure 1). Margin of error was estimated at approximately 5.78%. As required for eligibility, all respondents were involved in the treatment of patients with cancer and related pain, and saw at least 10 patients per month. Surveyed nurses were mostly female, were within older age categories, worked full-time

Table 1: Sociodemographic characteristics of survey respondents in the study

Characteristics of respondents	Number of respondents (Absolute values [%])
Age	
20–29 years	12 (6.0%)
30–45 years	59 (29.4%)
46–65 years	96 (47.8%)
NR	34 (16.9%)
Sex	
Females	162 (80.6%)
Males	5 (2.5%)
NR	34 (16.9%)
Region of practice	
British Columbia	12 (6.0%)
Alberta	18 (9.0%)
Saskatchewan	1 (0.5%)
Manitoba	8 (4.0%)
Ontario	73 (36.3%)
Quebec	25 (12.4%)
Nova Scotia	11 (5.5%)
New Brunswick	11 (5.5%)
Prince Edward Island	3 (1.5%)
Newfoundland	4 (2.0%)
Yukon	1 (0.5%)
NR	34 (16.9%)
Highest level of education	
Nursing diploma	45 (22.4%)
Nursing degree	70 (34.8%)
Master's	44 (21.9%)
Other	8 (4.0%)
NR	34 (16.9%)
Specialty education	
CON(C)	103 (52.6%)
Oncology Nursing Certificate	56 (28.6%)
Other	37 (18.9%)
Work status	
Full time	138 (68.7%)
Part time/Casual	28 (13.9%)
NR	35 (17.4%)
Years in oncology nursing	
10 years and less	62 (30.8%)
11 to 20 years	59 (29.4%)
Greater than 20 years	41 (20.4%)
NR	39 (19.4%)
Practice setting	
Ambulatory	127 (63.5%)
Inpatient	53 (26.5%)
Community	12 (6.0%)
Homecare	3 (1.5%)
Other	5 (2.5%)

Note: NR=Non-responders

(Table 1), and approximately half (47.8%) had more than 20 years' experience in the nursing field. The proportion of respondents practising within each of the provinces/Yukon Territory reflects regions of practice for nurses in the broader Canadian population (Canadian Institute for Health Information [CIHI], 2010), except no respondents came from the Northwest Territories/Nunavut, and so provides an acceptable representation of cancer nurses' perceptions across Canada.

Characteristics of pain management

When asked to select the three most common tumour types requiring pain medication, half of respondents (50.5%) identified the need for pain medication in association with cancer of the lung, followed by breast (42.5%), colorectal (41.5%), prostate (36.5%), "other" tumour types (24.5%), and melanoma (9%). About one-quarter (26.5%) of nurses surveyed did not detect a difference in the need for pain treatment across tumour types. For treatment of background pain, all/most respondents reported the use of hydromorphone (100%) or morphine (99.5%) by patients; slightly fewer indicated the use of codeine or fentanyl (both 92.5%), oxycodone (91.5%); and 62.2% of respondents reported patients' use of "other" medications. When treating BTPc, most respondents indicated patients' use of hydromorphone (99.5%), morphine (97.0%), codeine or oxycodone (both 88.1%), with a smaller proportion using fentanyl (64.7%) or "other" medications (46.3%). Of those nurses that reported the use of hydromorphone, morphine, codeine, oxycodone or fentanyl, most indicated that their patients experienced at least some relief from background and BTPc (Table 2). No clear trend was apparent between the type of medication reported to be used by patients and the level of nursing education (i.e., diploma/degree, Master's, "other") or specialty education (i.e., CON(C), Oncology Nursing Certificate, other), or years of experience in oncology practice, except that respondents indicating >10 years of oncology nursing experience more commonly reported that patients used "other" treatments (i.e., medications other than morphine, hydromorphone, codeine, oxycodone, or fentanyl) than those with 10 years' experience or less.

Onset time

Time to onset of action of BTPc treatments such as morphine, hydromorphone, codeine and oxycodone was most commonly perceived by nurses as 21 to 30 minutes in their patients (Table 3). In contrast, nurses most commonly noted onset of action for fentanyl to be 5 to 10 minutes or >30 minutes in their patients, and onset of "other" therapies to be <5 minutes.

Route of administration and associated issues

Oral intake was the primary route of administration for BTPc medications, as reported by the majority of respondents for morphine (78.3%), hydromorphone (80.6%), codeine (82.9%), and oxycodone (85.7%), while administration by any other route (e.g., intravenous, subcutaneous continuous infusion, intramuscular injection) was reported by <10% of respondents. Routes for fentanyl administration for BTPc reported by nurses included oral (11.4%), buccal (8.6%), subcutaneous continuous infusion (8.0%), intravenous (5.7%), intranasal (2.9%), and intramuscular (1.1%). Overall, the administration routes

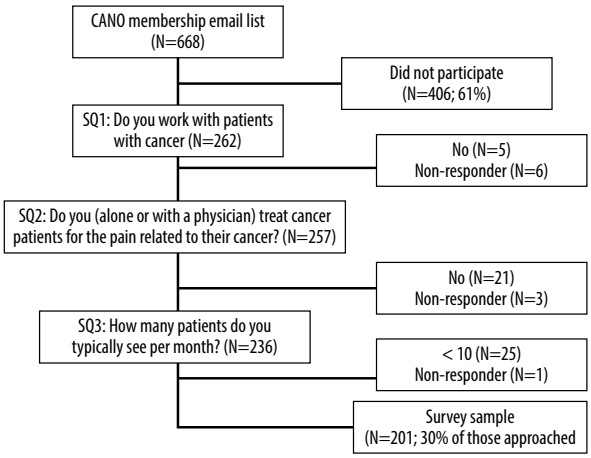

Figure 1: Selection process for eligibility of CANO members

Table 2: Patient relief from background pain and BTPc from medications as perceived by nurses surveyed; N=201

Number of respondents (Absolute values [%])

Time to onset (minutes)	Morphine		Hydromorphone		Codeine		Oxycodone		Fentanyl		Other	
	Bkgd pain	BTPc	Bkgd pain	BTPc	Bkgd pain	BTPc	Bkgd pain	BTPc	Bkgd pain	BTPc	Bkgd pain	BTPc
No pain relief	1 (0.5%)	1 (0.5%)	1 (0.5%)	2 (1.0%)	7 (3.5%)	8 (4.0%)	1 (0.5%)	1 (0.5%)	2 (1.0%)	3 (1.5%)	30 (14.9%)	19 (9.5%)
Minimal pain relief	9 (4.5%)	3 (1.5%)	0	0	44 (21.9%)	43 (21.4%)	17 (8.5%)	22 (10.9%)	4 (2.0%)	10 (5.0%)	6 (3.0%)	7 (3.5%)
Some pain relief	96 (47.8%)	101 (50.2%)	86 (42.8%)	87 (43.3%)	96 (47.8%)	89 (44.3%)	103 (51.2%)	101 (50.2%)	80 (39.8%)	52 (25.9%)	43 (21.4%)	27 (13.4%)
Complete pain relief	68 (33.8%)	63 (31.3%)	88 (43.8%)	84 (41.8%)	13 (6.5%)	10 (5.0%)	37 (18.4%)	26 (12.9%)	74 (36.8%)	38 (18.9%)	20 (10.0%)	13 (6.5%)
My patients *have not* used (Bkgd pain)/*do not* use (BTPc)	1 (0.5%)	6 (3.0%)	0	1 (0.5%)	15 (7.5%)	24 (11.9%)	17 (8.5%)	24 (11.9%)	15 (7.5%)	71 (35.3%)	76 (37.8%)	108 (53.7%)
Missing (NR)	26 (12.9%)	27 (13.4%)	26 (12.9%)	27 (13.4%)	26 (12.9%)	27 (13.4%)	26 (12.9%)	27 (13.4%)	26 (12.9%)	27 (13.4%)	26 (12.9%)	27 (13.4%)

NR=nonresponder; Bkgd=Background; BTPc=Breakthrough pain in cancer

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most commonly reported for BTPc medications were similar to those used for treatment of background pain, except that for background pain fentanyl was indicated as being largely applied transdermally (83.0%). Common problems with administration of opioid medications, as perceived by nurses surveyed, included failure to work quickly enough (35.7%), difficulty swallowing (16.6%), the need for caregiver assistance to administer (13.2%), mouth sores (12.6%) and dry mouth (11.5%). Overall, 12.5% of nurses surveyed reported that dry mouth interfered with oral administration of BTPc medications in more than half of their patients, as reported for oral mucositis (11.0%), sore mouth (8.0%), mouth ulcers (6.0%), dysphagia (5.5%), canker sores (5.0%), difficulty in opening mouth (1.5%), and "other" discomforts of the mouth (0.5%). These patient-related factors were considered often or always relevant to the delivery of BTPc medications by about half (44.3%) of nurses surveyed. Surveyed nurses reported that less than one-quarter of home caregivers (21.4%) were at least somewhat comfortable administering subcutaneous continuous infusion for BTPc.

Adherence

Most nurses surveyed (68.7%) indicated they believed that patients generally adhere to pain medications. Of the various options listed for reasons underlying non-adherence, respondents (n=26) selected fear of addiction (22.1%), adverse events (21.2%), pain not being severe enough (16.8%), medication not being effective (15.0%), relief not quick enough (11.5%), cost concerns (6.2%), medication lasting longer than the pain episode (2.7%) or "other" reason (4.4%). As many as 82.1% of the nurses advised patients to take medications every time they experience an episode of BTPc. Those not offering this advice selected reasons such as the pain not always being severe enough (25.0%), concerns about tolerance (16.7%), and "other" reasons (41.7%).

Tolerability

According to nurses surveyed, adverse effects associated with BTPc medication were mainly constipation (23.1%), sedation (21.6%), nausea (19.6%), dry mouth (14.0%) and difficulty remembering/concentrating (12.1%); ≤0.5% indicated bad mood, low libido, loss of drive, "other", or no adverse effects. Half of nurses surveyed reported that their patients continue to experience adverse effects from the pain medications after their BTPc episode had resolved.

Patient satisfaction with BTPc medication and key features

Most nurses surveyed (72.2%) reported they believed that their patients were not very satisfied with current treatment modalities for BTPc, and 5.5% were unsure of their patients' level of satisfaction. The most important feature for BTPc treatment was perceived by nurses surveyed as being quick relief (Figure 2).

Dialogue around BTPc

Most of the nurses indicated that they discussed pain management with all their patients (61.7%), while some had this discussion with only some (37.8%) or no patients (0.5%). Choosing to have this discussion with either all, or only some patients was generally irrespective of the level of education the nurses had attained (i.e., nursing diploma/degree, Master's, "other") or specialty education (i.e., CON(C), Oncology Nursing Certificate, other), but those who reported they were "moderately" or "extremely" confident in advising patients on BTPc management were more likely to report discussing pain management with all patients (63.0% and 75.6% respectively) rather than only some patients (37.0%, 22.2%, respectively). Of those respondents who reported discussing pain management with all patients (n=109), a larger proportion indicated they believed that their patients were very satisfied with their BTPc medication (14.7%) compared to those who reserved discussion of pain management for only some patients (3.1%). Further, all of the nurses (n=18) who reported they believed their patients were very satisfied also identified themselves as being either moderately or extremely confident in advising on BTPc management. Overall, 62% of respondents reported being moderately or extremely confident in advising patients on BTPc, 18.4% were only somewhat confident, 3.5% slightly confident and 0.5% not at all confident in offering this advice. When provided with choices of tools/interventions for improving confidence in advising patients on BTPc management, respondents most commonly reported a need for: patient education tools about BTPc (19.2%), specific guidelines on managing BTPc (18.9%), BTPc specific assessment tools (17.6%), and/or education/CME programs (17.3%).

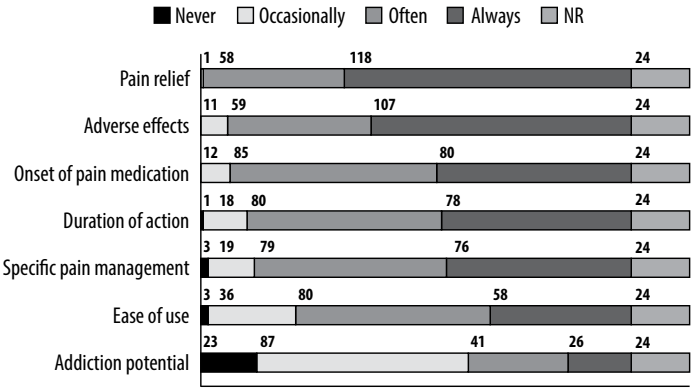

Figure 2: Most important features for BTPc treatments from the perspective of nurses surveyed (Ranked); N=201
NR=non responder

Table 3: Time to onset of action for BTPc medications as perceived by nurses surveyed; N=201

	Number of Respondents (Absolute Values [%])					
Time to onset (minutes)	**Morphine**	**Hydromorphone**	**Codeine**	**Oxycodone**	**Fentanyl**	**Other**
<5	10 (5.0%)	9 (4.5%)	1 (0.5%)	1 (0.5%)	15 (7.5%)	23 (11.4%)
5–10	26 (12.9%)	28 (13.9%)	8 (4.0%)	10 (5.0%)	31 (15.4%)	9 (4.5%)
11–20	45 (22.4%)	51 (25.4%)	23 (11.4%)	40 (19.9%)	13 (6.5%)	8 (4.0%)
21–30	70 (34.8%)	64 (31.8%)	66 (32.8%)	64 (31.8%)	5 (2.5%)	9 (4.5%)
>30	22 (10.9%)	22 (10.9%)	48 (23.9%)	32 (15.9%)	31 (15.4%)	8 (4.0%)
My patients do not use	2 (1.0%)	1 (0.5%)	29 (14.4%)	28 (13.9%)	80 (39.8%)	117 (58.4%)
Missing (NR)	26 (12.9%)	26 (12.9%)	26 (12.9%)	26 (12.9%)	26 (12.9%)	27 (13.4%)

Of various topics related to pain management, "addiction potential" was reported as least likely to be discussed; 54.7% of the nurses surveyed "never" or only "occasionally" discussed this aspect of pain management with patients (Figure 3).

Discussion

Findings from this online survey suggest that the surveyed sample of Canadian nurses in oncology recognize the importance of vigilant management of BTPc and the need for improving patient satisfaction with treatment. Although oncology nurses surveyed could define the characteristics of an "ideal" treatment, results support the need for improved dialogue with patients, as well as access to specialized education and guidelines on BTPc and its management.

Respondents reported the prevalent use of the World Health Organization "step 2 and 3" opioids including morphine, which is considered the benchmark treatment for moderate to severe pain (Donner & Zenz, 1995; Hanks et al., 2001; World Health Organization, 1996). These opioids were used for both background and BTPc, which may reflect the practice of prescribing a percentage of the ATC opioid dose as "rescue" medication (World Health Organization, 1996; Zeppetella, 2011b). Use of other medications was more commonly reported by nurses with >10 years' experience in the oncology field compared with less-experienced nurses, which may reflect differences in communications with patients about their treatment, and a need for implementation of standardized, consistent approaches to assessment. Oral administration of opioids was the route commonly reported by respondents, as is generally recommended for treatment (World Health Organization, 1996). Nevertheless, the nurses surveyed indicated that oral issues affected some of their patients, and could present a challenge to the delivery of BTPc medications, as noted previously (Davies et al., 2011; Jacobsen, Moldrup, & Christrup, 2008, 2009).

The majority of respondents (72.2%) reported that they thought their patients were not very satisfied with current treatment modalities for BTPc, similar to findings from a U.K.-based survey of patients in hospice (Zeppetella et al., 2000), but difficult to reconcile with the results of a recent European survey of cancer patients that indicated most patients (76%) were satisfied with their rescue medication (Davies et al., 2011). Non-opioid treatments, adjuvants, or "other" opioids (i.e., other than morphine, hydromorphone, codeine, oxycodone, or fentanyl) were not generally recognized by the nurses surveyed to offer substantial control of BTPc, since relatively few respondents reported their patients achieving "some" or "complete" relief from these therapies.

A larger proportion of respondents (35%) indicated that their patients do not use fentanyl for BTPc compared with other opioid medications, reflecting the low usage of transmucosal products reported in a recent survey of practitioners in France (J.F. Morere et al., 2011) and patients in Northern Europe (Davies et al., 2011). This low usage was in contrast with many respondents' views that "quick relief" was one of the most important features of treatment and "failure for medications to work quickly enough" as the most common problem with opioid administration. Further, while use of oral opioid medications such as hydromorphone, morphine, and oxycodone were widely reported in this patient population, these agents' onset of action of about 30 to 40 minutes suggests they may provide an analgesic effect only after a typical episode of BTPc has already resolved (Zeppetella, 2008; Zeppetella & Ribeiro, 2003). The more rapid onset of fentanyl preparations did not appear to be widely recognized by the nurses surveyed: while 15.4% of respondents perceived an onset time of five to 10 minutes for patient relief (within the range generally reported for oral transmucosal fentanyl, fentanyl buccal tablets, and intranasal fentanyl (Davis, 2011), another 15.4% of nurses surveyed indicated a >30 minutes onset for fentanyl action. This extended time to effect more closely approximates the onset of oral opioids such as hydromorphone, morphine, and oxycodone (Zeppetella, 2008), or reflects the onset time for transdermal fentanyl (Hanks et al., 2001), rather than transmucosal fentanyl preparations. The findings suggest a lack of awareness of the temporal properties of fentanyl designed for the management of BTPc. This is consistent with findings from of a European study that 38% of cancer nurses were unaware of medication specifically available for the treatment of BTPc (European Oncology Nursing Society, 2011).

The importance placed on vigilant management of BTPc was apparent from the majority of respondents reporting that they advise their patients to take medications regularly for BTPc. However, a large proportion of nurses cited unspecified reasons for not offering this advice to patients, other than the pain not being severe enough or tolerance concerns. It is curious what these other reasons may be, and whether some of these factors for not advising patients to regularly take BTPc medications relate to the nurses' lack of knowledge or confidence level in providing patients with this information. A majority of nurses reported that patients generally adhere to their regimen, although the main reason for non-adherence was fear of addiction, which may reflect a longstanding, but unfounded concern over addiction in patients without history of chemical dependence (Glare, Aggarwal, & Clark, 2004; Hanks et al., 2001), and act as a barrier to using pain medication (Elcigil et al., 2011). Interestingly, despite the recognition by nurses that fear of addiction is the main reason for non-adherence to BTPc medication, addiction potential was the aspect of pain management least often discussed with patients. Such findings highlight the need for more effective dialogue between nurses and patients to potentially enhance concordance with BTPc medications. The second most common reason for non-adherence was adverse events (AEs); many nurses reported that patients continue to experience AEs after their BTPc episode has resolved, which suggests that their medication is having an effect beyond the resolution of the pain episode (Zeppetella, 2008; Zeppetella & Ribeiro, 2003).

In our survey, confidence in advising patients—but not level of education or specialty education—appeared to influence whether information about pain management was discussed with all, or only some patients, and whether patients were perceived as being very satisfied with their medications for BTPc. Many respondents (~25%) reported they were not even moderately confident in offering advice on pain management to patients, which is broadly in line with the 36% of nurses reported to lack confidence in a European based nurses' survey (European Oncology Nursing Society, 2011). Respondents indicated that specialized educational tools and guidelines on BTPc would improve their confidence in advising patients on BTPc management, which reflected the need for further information on BTPc revealed in a recent European nurses' study (European Oncology Nursing Society, 2011). The need for increased awareness and enhanced education on BTPc for health care providers and persons

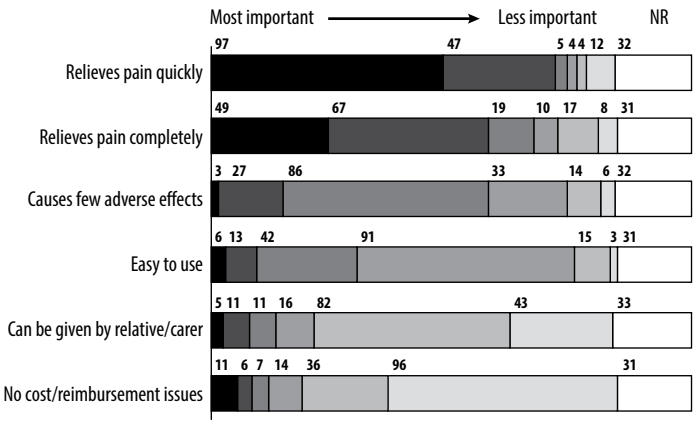

Figure 3: Pain management discussed with patients; N=201

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with pain is also highlighted within a national pain strategy proposed for adoption in Canada (The Canadian Pain Society [CPS] and the Canadian Pain Coalition [CPC], 2011). Among the many recommendations, the draft document suggests improving the health care literacy of patients and families, enhancing educational programs for health care professionals, and supporting best practice care within inter-professional team settings (CPS and CPC). These strategies may help to enhance the effectiveness of dialogue between health care professionals and their patients. A need to enhance the quality of discussion surrounding pain management was apparent from the 5.5% of Canadian nurses' surveyed that reported being unsure of their patients' level of satisfaction with BTPc medication.

Limitations to this study include the use of the CANO members' email list for recruiting respondents rather than through random sampling of the broader Canadian oncology nurse population. While the location of respondents across Canada, in general, reflected that of cancer nurses, the number of respondents per province was insufficient to draw any conclusions other than for the country, as a whole. The survey relied on nurses' recall and their perception of the patient experience, the latter of which may differ from the perceptions of other members of the pain management team involved in the care of patients and their families. Further limitations included the possibility that respondents in an online survey are more likely to reflect a computer-literate nurse population with high internet usage; and a non-response bias that could potentially emphasize responses of nurses that agreed to participate in the study over those that declined participation. The survey focused on pharmacological interventions for pain control; nurses' perceptions of the utility of other modalities for pain management were not assessed. While patients' use of medications was reported by surveyed nurses, a distinction was not made in the survey as to whether this usage reflects medication that was administered by a nurse directly or prescribed by a physician for treatment. A 39% response rate (i.e., including screen failures) was obtained and, as with online surveys in general, inherently reflect in part server rejections, out-of-office/automated replies, and the use of spam filters (Dobrow et al., 2008). In total, 95% of those who were determined eligible on screening completed the survey.

Implications

As the first study of its kind to be undertaken in Canada, this survey of oncology nurses contributes to the understanding of issues in the management of BTPc in Canadian centres. Overall findings provide greater insight into the perception of BTPc management by oncology nurses, whose ability to evaluate and alleviate pain is crucial to care. The survey supports published data on the characteristic features of BTPc medications, barriers to patient acceptance and adherence to treatment, and ways to overcome potential challenges in pain management to enhance quality of care. Specialized education and guidance in the management of BTPc may help to improve nurses' confidence in advising patients on pain management, enrich the dialogue between nurses and patients, and enhance concordance with BTPc medications. Some specific guidance on BTPc management is currently available in Canadian guidelines/reports (Cancer Care Ontario, 2008; Green et al., 2010), and a set of evidence-based European guidelines focusing on BTPc management is currently under development (European Oncology Nursing Society [EONS], 2012). Tailoring the treatment plans of patients to their individual needs and preferences, as well as the characteristics of the profile of BTPc episodes, may be beneficial for enhancing the quality of pain management.

Future research could well focus on overcoming barriers in pain management and identifying facilitators to having conversations with patients about concerns such as addiction. A qualitative study may be valuable for developing a deeper understanding of these aspects. Subsequent testing of educational supports that are designed to facilitate these conversations, while ensuring they are practical to apply in a Canadian health care environment would be important. Implementation of these supports, such as by conducting relevant educational sessions, could help to increase nurses' awareness of patient-related factors in the delivery of BTPc that may serve as barriers to optimal care. Since oral routines are the primary delivery method and issues with oral intake of medication were apparent in the patient population, then educating nurses about the assessment of oral route delivery would be important. Nurses should also be prepared to perform oral care measures for patients unable to do so for themselves, prior to the administration of oral agents, if this is a particular problem for patients. Subcutaneous infusion of medications was identified as a challenge by one-quarter of caregivers, suggesting that educational support and opportunities could be provided to community agencies to increase comfort level when performing such administrations to patients at home. Since the most important feature for BTPc treatment was quick relief, nurses equipped with an understanding that some medications have a faster onset to action would be in a position to advocate for patients to receive medications that will provide the fastest relief. Nurses need to be aware of medications or delivery methods with rapid onset and how they are to be administered. From this study, it would appear that while nurses are familiar with transdermal patches for continuous release of analgesia, many did not have experience or seemed unaware of the availability of newer, fast-acting transmucosal medications. It may well be that physicians or oncologists are also less familiar with the availability of these fast acting agents for BTPc and, therefore, not prescribing them. If prescribing practices by physicians are based on guidelines and recommendations developed by agencies such as WHO and symptoms guidelines for practice distributed by provincial cancer care agencies, then perhaps a systematic review of the literature should be taken on a regular basis so as to reflect these changes in delivery systems of BTPc medications. Separate guidelines on the use of analgesic for BTPc may be an appropriate next step. It may be beneficial to perform a survey similar to this nurses' survey but, instead, gathering the perspectives of Canadian physicians, patients and pharmacists; the latter group, in particular, has an influence on physicians and will often engage in patient teaching.

A need is apparent for the development of patient education resources that provide clear and simple instructions for patients, answering such questions as what is BTPc, when to take BTPc medications, and how BTPc medications are to be taken. This is especially important in light of new administration routes that have been developed, which may be less familiar to nurses and patients (buccal patch, lozenges, and nasal sprays for BTPc). All members of the pain management team should be involved in the development of these patient resources, as well as patient education strategies. As prescribers across Canada, physicians themselves are an influential resource for patients and their families. With the onset of transmucosal analgesics, health care professionals should be aware of potential safety issues and relay pertinent information to their patients. Manufacturers' labelling should clearly identify the correct delivery method, and patients given clear instructions regarding how to use these medications. For example, a patient may inadvertently swallow a medication meant to be absorbed sublingually, or a buccal patch may mistakenly be placed on the skin similar to a scopolamine patch.

Finally, CANO practice standards identify that specialized oncology nurses are encouraged to be involved in advocacy activities regarding various aspects of patient/family care. Nurses provided with effective educational supports and tools will be more knowledgeable about pain management and, in particular, BTPc and some of the more recent treatment options. Consequently, these nurses will be well equipped to advocate for the best pain management for these patients.

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